

Myths and Facts about Electricity in the U.S. South



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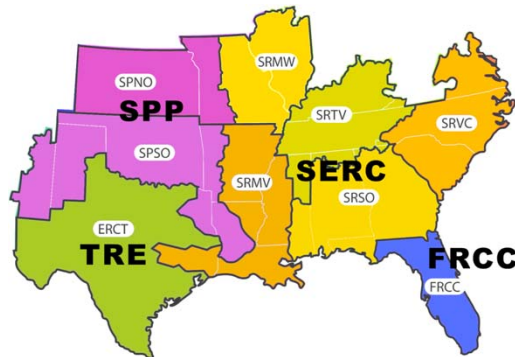
Overview

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- **Background**
 - The U.S. South and its energy use
- **Methodology**
 - National Energy Modeling System (NEMS)
 - Scenario Analysis
- **Myths and Facts**
 - 6 Myths about clean energy in the South
 - Facts about clean energy in the South
- **Conclusions**

Energy in the South: A Growing Demand and an Energy-Intensive Economy

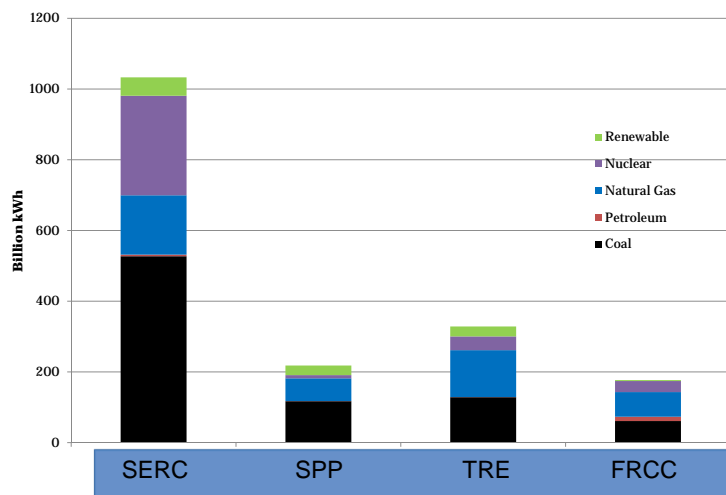
The South is home to 36% of the U.S. population, but it consumes 44% of the nation's energy.



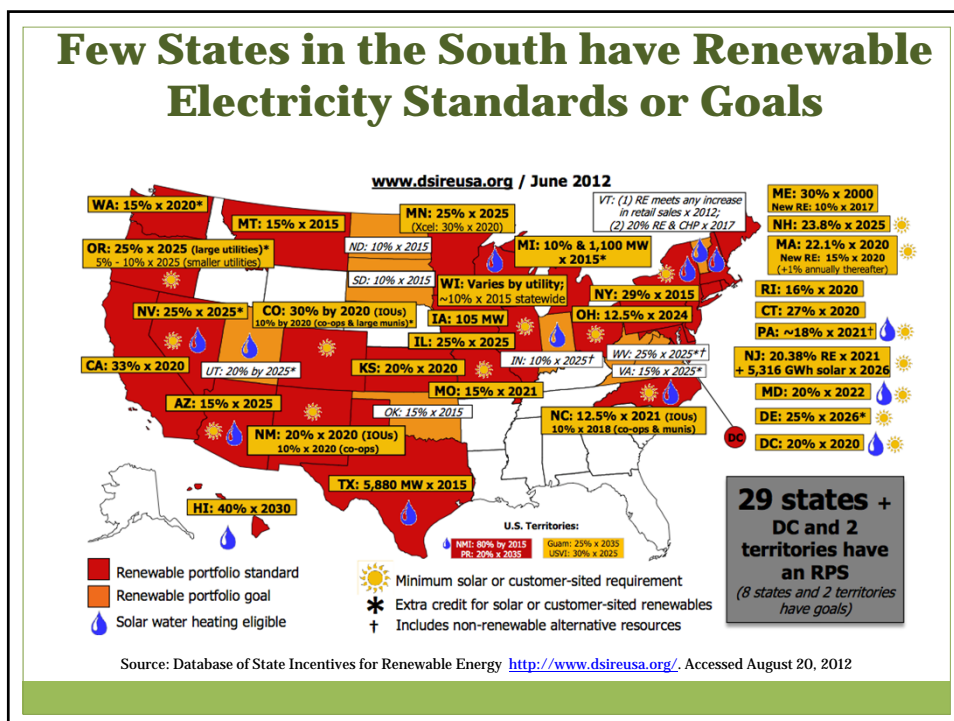
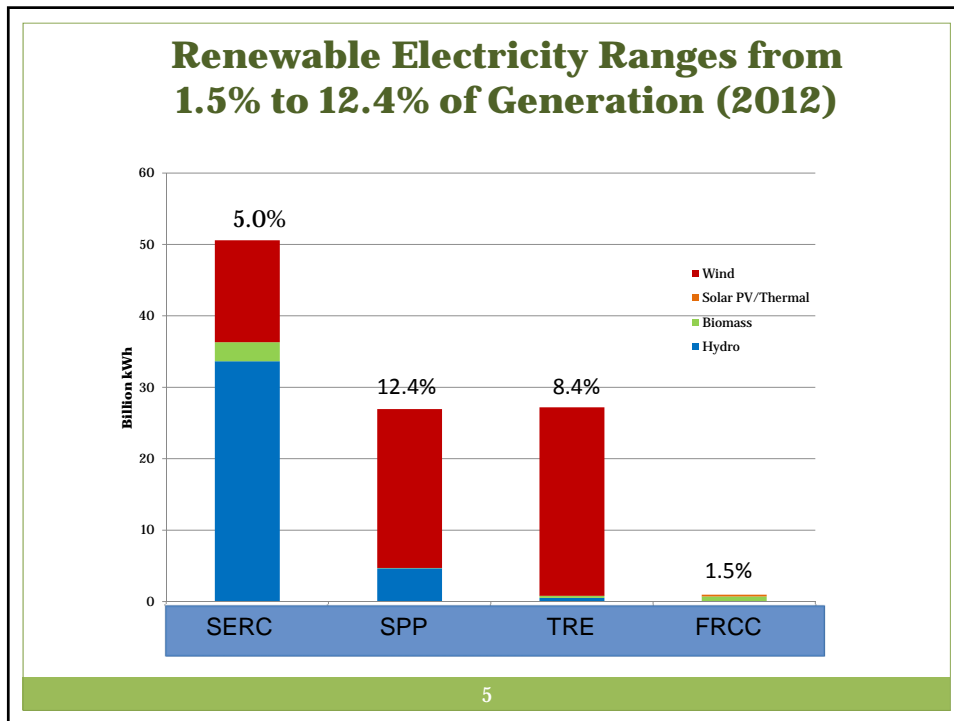
SERC = SERC Reliability Corporation SPP = Southwest Power Pool
 TRE = Texas Reliability Entity FRCC = Florida Reliability Coordinating Council

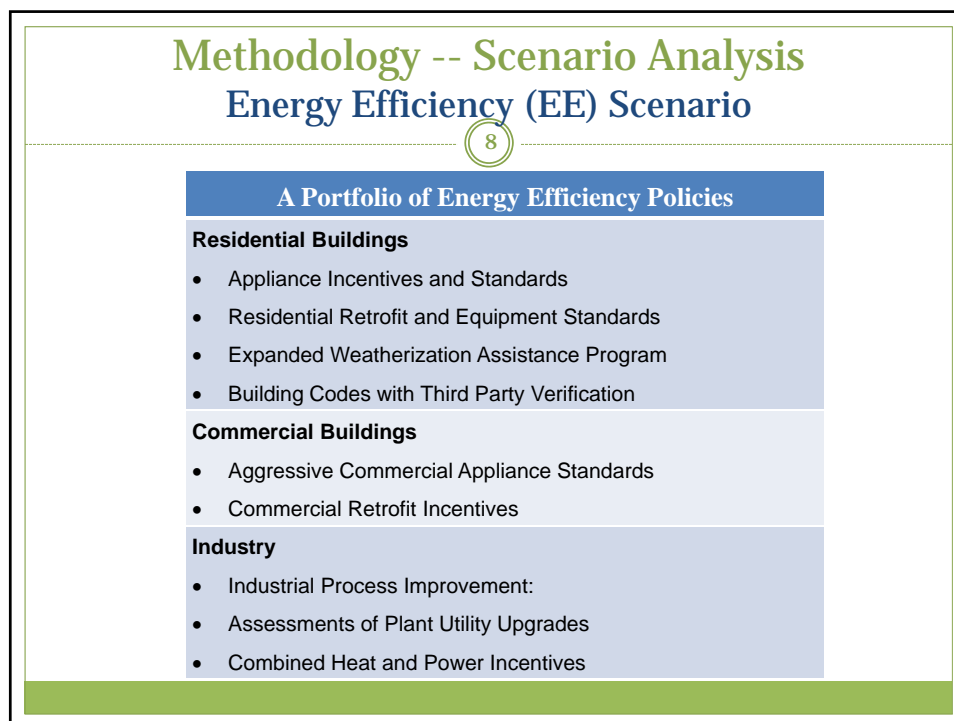
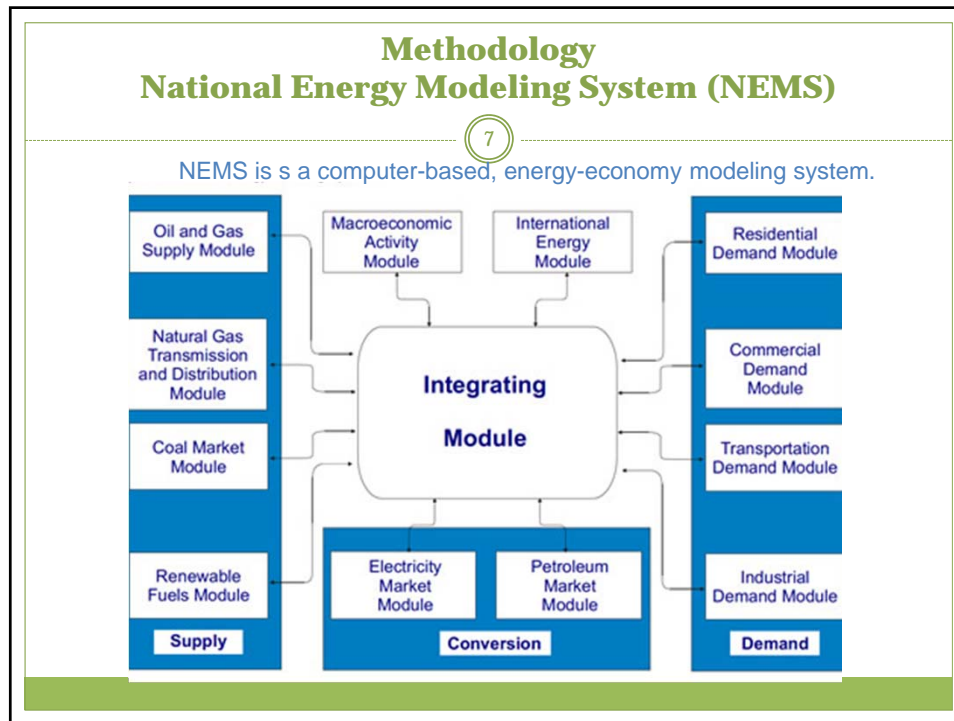
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Electricity in the South: Coal Dominates in all Four Regions (2012)
















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Methodology -- Scenario Analysis Renewable Energy (RE) Scenario

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Changes	Wind	Biopower	Municipal Waste	Hydro	Solar PV – Com & Res	Solar PV - Utility	Solar Water Heating	Heat Pump Water Heating	Combined Heat and Power
Resource Updates									
Tax Credit Extended									
Technology Improved									
Revised Costs									

- ### Methodology -- Scenario Analysis RES, CCF and Combinations
- 10
- **Renewable Electricity Standard (RES) Scenario**
 - Require 25% renewable electricity production by 2025
 - **Carbon-Constrained Future (CCF) Scenario**
 - Impose a price on carbon, starting from \$15/metric ton of CO2 in 2010 and increasing linearly to \$51/metric ton of CO2 in 2030 (in \$2007)
 - **Combined Scenarios**
 - EERE
 - RE+RES
 - EERE+RES
 - EERE+CCF

Myths restrain thought and behavior and can become powerful tools for sustaining the status quo

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- “It ain't what you don't know that gets you into trouble. It's what you know for sure that just ain't so.”

-- Mark Twain

- Illuminate energy myths and misperceptions
- understand the belief systems that underpin them
- explain the region's private investments and public policies and foster productive public debate.

Myths About Clean Energy in the South

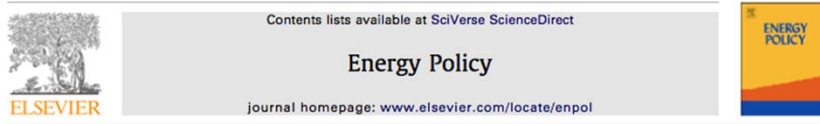
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- **Myth 1: Energy efficiency and renewable energy by themselves cannot meet the South's growing electricity demand.**
- **Myth 2: The South does not have sufficient renewable energy resources to meet a Federal Renewable Electricity Standard.**
- **Myth 3: Renewable energy cannot be promoted without escalating electricity rates.**
- **Myth 4: Energy efficiency and renewable energy policies are not compatible.**
- **Myth 5: Cost-effective energy efficiency and renewable energy policies are sufficient to retire existing coal plants and reduce air pollution.**
- **Myth 6: Power resource decisions have little impact on water consumption.**

Results

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Most of this analysis is discussed in a 2011 publication:



Myths and facts about electricity in the U.S. South

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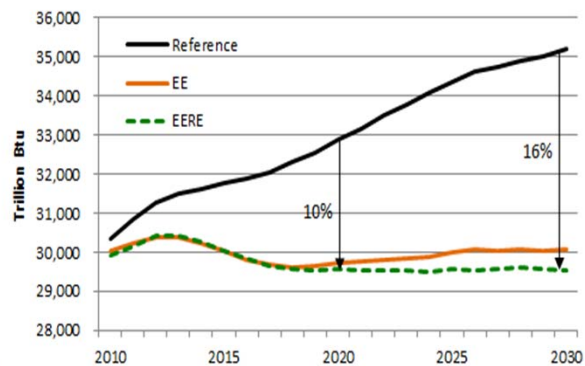
“With no readily available economic alternatives on the horizon, fossil fuels will continue to supply most of the world’s energy needs for the foreseeable future.”

-- Lee Raymond,
 Former CEO of
 ExxonMobil, 1997

Myth 1: Energy Efficiency and Renewable Energy by Themselves Cannot Meet the South’s Growing Electricity Demand.

Fact: EE flattens the otherwise growing demand. EE and RE together can meet the further electricity demand.

Energy Consumption in RCI Sectors in the South



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“Georgia simply doesn’t have the wind, solar or biomass resources required to meet proposed new federal regulations for renewable energy generation.”

-- The Atlanta Journal-Constitution, 2009

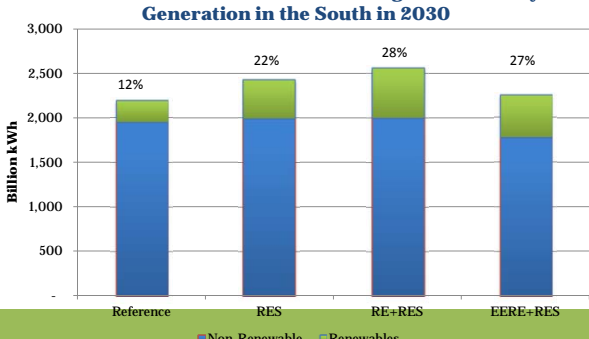
“We can't meet the targets in the Southeast.”

-- Senator Lindsay Graham of South Carolina (The New York Times, 2010)

Myth 2: The South does not have sufficient renewable energy resources to meet a Federal Renewable Electricity Standard.

Fact: The South has good wind, biomass and customer-owned renewable resources. With coordinated energy efficiency and renewable energy policies, the South could comply with the RES goal.

Renewable Resources as a Percentage of Electricity Generation in the South in 2030

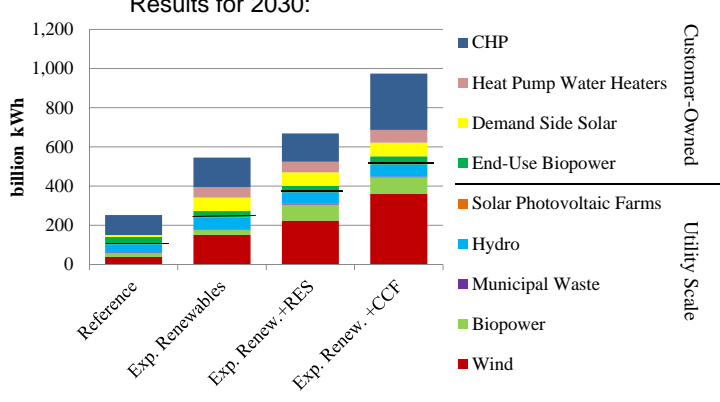


Scenario	Renewables (%)
Reference	12%
RES	22%
RE+RES	28%
EERE+RES	27%

Customer-Owned Resources Could Double the South’s Renewable Generation and Use

○

Results for 2030:



RES = Renewable Electricity Standard (25% by 2025)

CCF = Carbon-Constrained Future (price on CO₂)

Customer-Owned

Utility Scale

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“If enacted, a federal RPS likely will result in higher cost for customers. Renewable generation alternatives generally are more costly than conventional generation alternatives.”

-- Entergy Louisiana LLC, Integrated Resource Plan, 2009, p.6

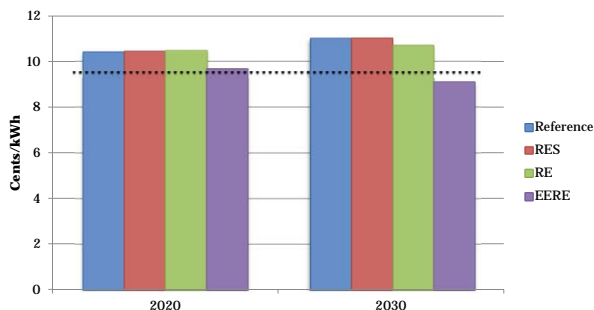
“... (A Federal RES would cause consumers to) pay more for their electricity to meet this standard. And they are going to have to pay a lot more.”

-- Senator Jeff Sessions of Alabama

Myth 3: Renewable Energy Cannot be Promoted without Escalating Electricity Rates.

Fact: Renewable generation can be stimulated without further escalation of electricity rates. Along with energy efficiency, renewables can even achieve reductions in electricity rates and bills.

Average Residential Electricity Rate in the South



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“... if the goal of enacting a CES (or RES) is to expand the domestic market for new, cleaner electric generation technologies,..., allowing energy efficiency to quality will actually undermine this core CES policy objective.”

-- World Resource Institute, 2011

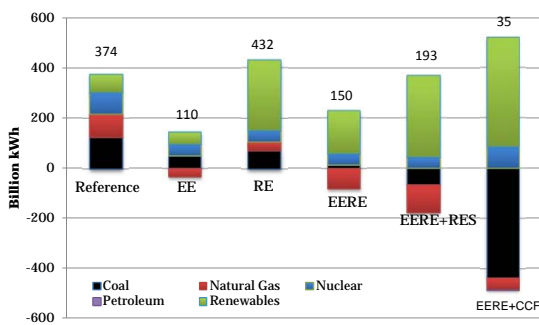
“We should have the policy of efficiency first.”

-- U.S. Representative Peter Welch of Vermont

Myth 4: Energy efficiency and renewable energy policies are not compatible.

Fact: Renewable policies displace fossil fuel generation at a much faster rate than efficiency is reduced.

Net Generation Growth in the South between 2010 and 2030



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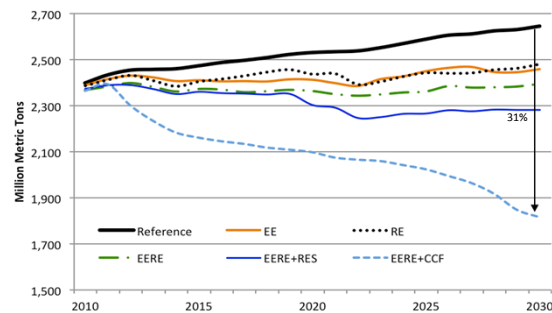
“ The wind, solar and energy efficiency potential in the region can allow these states to eliminate demand growth and displace existing coal consumption.”

-- Sierra Club, 2011

Myth 5: Cost-effective energy efficiency and renewable energy policies are sufficient to retire coal plants and reduce air pollution.

Fact: A price on carbon or tighter air regulations when added to energy efficiency and renewable energy policies can significantly displace existing coal generation.

Emissions in the South



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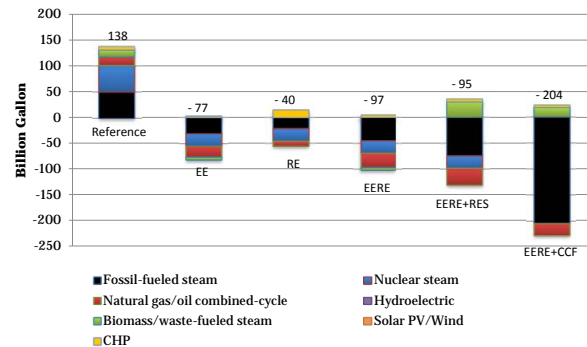
The problem:

While state water policies are principally developed as a way to reduce energy consumption, energy impacts on water usage is often ignored, according to a survey of energy and water departments by the Center for Energy and Environmental Policy.

Myth 6: Power Resource Decisions Have Little Impact on Water Consumption.

Fact: Energy efficiency and renewable energy policies would reduce both water withdrawal and consumption.

Estimated Water Consumption Savings in the South 2030 beyond 2010



Conclusions

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- **In contrast to the myths, with a suite of well-deployed measures, the South can**
 - Promote renewable energy without electricity rates escalation
 - Make energy efficiency and renewable energy work hand-in-hand to meet future electricity demand
 - Meet the RES requirement
 - Displace a large amount of coal-fired power and reduce CO₂ emissions significantly
 - Achieve water savings

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